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# TWO SITES IN SOUTHERN NEW ENGLAND

By

Douglas S. Byers

Investigations carried on at two sites in southern New England in 1935 produced information that can be comprehended more completely now that data from other sites has been gathered. The Huntington site, in Rhode Island, was mentioned briefly, but not by name, in the "Notes and News" section, American Antiquity, Vol. 1:159. Griffin (1946:42) referred to the E. D. Pray [sic] site and compared specimens from it to those found by Greenman at the George Lake site. The only excuse for publishing this note at this time is that neither site has been described in any detail.

I shall first describe the site known to us as E. D. Prey. It was brought to our attention by H. E. Bennett, a retired engineer, of Putnam, Connecticut, and Everett Griggs, of Abington, who had discovered it and conducted excavations during which they uncovered some rather puzzling information.

The site lay within the flowage area of a reservoir built at the headwaters of Whetstone Brook, in northeastern Connecticut, just west of the Rhode Island boundary. Mr. Bennett called the site the E. D. Prey site, and it is so recorded in all his notes. The reservoir was at that time called the Upper Chestnut Hill Reservoir. Pope (1952) refers to the Eddie Pray Reservoir, and the topographic map of the East Killingly Quadrangle (U. S. Department of the Interior, Geological Survey, 7½-minute Series, Ed. 1947) calls it the Eddy Pray Reservoir. Nevertheless I shall stick to Mr. Bennett's usage.

The area in which the site lies was, according to Mr. Bennett, part of the old E. D. Prey farm and was once crossed by a road. Two old stone slab bridges over the beds of the forks of the stream could be seen to the east and west of the small point on which the site was located. Nearly 100 years ago the dam was built to store water for a mill in East Killingly. This raised the level of the water during spring freshets to about two feet above the location of the site; normal high water inundated the first bottom and came just to the edge of the slight terrace on which the site was located, leaving the aboriginal remains two to three feet above the water.

Although the reservoir is so small that there was not room to generate waves big enough to remove all the loam from the site, bleached stumps standing near showed that close to two feet of duff and humus had been removed from at least a part of the site before we visited it. Loam did remain there, particularly on the upper parts of the site, and this was the home of burrowing insects of various sorts. On several occasions we had opportunities to see them at work, and note how they carried yellow subsoil into the loam and loam into the subsoil, producing a zone of mixing which was apparently being carried slowly deeper from year to year. There was therefore no sharp and lasting demarcation between loam and subsoil, a point of some importance in future discussions.

The yellow subsoil appeared to be a weathered reworked till, containing sandy gravel mixed with finer particles. It appeared to have been deposited by a braided stream. The upper six inches of subsoil were weathered to a rich yellow-brown, but below that depth the stain was lighter. Tubes of bog iron occurred in both humus and subsoil.

Implements had been collected by Mr. Bennett and Mr. Griggs not only from the loam, but also from the subsoil, and from a poorly-defined zone which they termed "the junction." As we have seen, this was a zone in where there was no clear-cut distinction between loam and subsoil; the forces of nature were actively at work mixing the two. Under these circumstances it is clear that any "boundary" between the two zones was transitory. In spite of this circumstance, some significance appears to be attached to the distribution of the implements, for one class was found chiefly within the subsoil, while another lay chiefly within the loam.

Catalogued implements from the loam and the "junction" or "base of the loam" are of quartz, quartzite, and green shale, and include stemmed points, quartz "turtlebacks", small scrapers, and knives of various forms and state of preservation. Most of them are illustrated in the accompanying Figure 1. The objects from the loam and the "junction" include many that were made from quartz. These include the small point with shallow side notches (*e*), the tip of some implement (*f*), the rather thin scraper-like piece (*a*) the object (*d*) which might be almost anything but is most probably a hafted scraper or a reamer (Seeing artifacts in some of these pieces of quartz takes almost as much imagination as seeing people and animals in clouds!), a small quartz "hammerstone" (*k*), eight quartz "turtlebacks" (*g, m, n, r-u*) showing varying degrees of work, and two "quarry pieces" (*h*) of quartz that show no sign of any retouch. There were in all 42 quartz "turtlebacks" of which the Foundation received eight.

There are other objects as well. A small fragment (*j*) of very impure quartz—it appears to have come from the end or edge of the vein—three fragments (*o*) (two not shown) of quartzite that show retouching or breaking of the edges, two fragments that appear to be butts of large knife-like implements (*p*), an oval knife (*bb*), a rather crude knife (*y*) that was broken into two pieces of which one was in loam while the other was in yellow sand, and two fragments of a large piece of tabular quartzite (*v*) that showed signs of having been battered along the lower edge. Another fragment of the same object was found in the yellow sand.

Two elongate stemmed points were found at the junction between the loam and the reworked till. One (*w*) of a reddish-brown shaley stone was found with its point in the till and its butt in the loam; the other (*x*) lay flat on the till but was covered with loam. The second one, made from a greenish shaley stone called locally "Rhode Island greenstone", lacks a fine finish, but this is characteristic of implements made from such material.

The two elongate stemmed points and the small quartz point with shallow side notches display a certain degree of asymmetry in that in each, one barb is somewhat more prominently developed than the other. This feature is not infrequently found among points in southern New England. However, in this case the points have been made from material of such nature that it is likely that the asymmetry is accidental.

Everything else which was recovered by us was from the till, and furthermore, all but two of these pieces were made from a quartzite which outcrops near Moosup, Connecticut, and is known locally as "Moosup stone." Of the two exceptions, one is a fragment of a cherty stone, the second is a fragment of a point made from another quartzite. Not one single piece of quartz was found in the till by us.

Although some of the denser and more compact Moosup stone breaks with a fracture which approaches the conchoidal, the more common fracture seems to follow obscure planes of bedding or cleavage, resulting in very rough and angular pieces which are difficult to place in any normally-accepted category. Furthermore, the stone appears to weather quite severely, and this process has in many cases nearly obliterated the scars of work.

Points and fragments include one (*z*) that appears to have been stemmed, although only a stub remains. It measures 1 11/16 x 7/8 x 3/16 inches. Barbs on either side of the stub look as if they had been isolated by working from the base. Although the object is made from a whitish quartzite that appears to be much more hard and compact than the Moosup stone, it is so weathered that it is impossible to say anything about the workmanship on the blade or edges. A second implement which may be classed as a point (*aa*) is very blunt at the forward end, somewhat lanceolate in shape, and has a thinned base. It measures 1 x 7/16 x 3/16 inches. The thinned base has been produced by removal of one chip which runs approximately half the length of the implement. Other evidence of workmanship is much obscured by weathering. The other two pieces in this class are fragments, one (*ee*) is the point of an implement which was apparently rather nicely worked from both faces. No evidence of the form of stem remains. The second fragment is by courtesy called a basal portion of a point (*dd*). One face consists of unretouched surfaces, but there is some slight evidence of work on the other; toward one end, pieces have been broken from the worked face, as if by a blow inward and away from the unworked face, resulting in a narrowing which might be called a stem. Two other fragments appear to be from rather large implements. One (*ff*) is a rather sharply pointed piece (2 1/2 x 17 /16 x 1/4 inch), the other (*ss*) is somewhat rounded and smaller (2 3/8 x 1 3/8 x 3/8 inch). As in the case of the fragment just described, one face consists of surfaces which show very little sign of retouch, the other face, however, has been produced by removing rather large shallow chips from both edges. There is a suggestion that one edge was somewhat modified by a fine retouch, but the weathered condition of the objects precludes any assured statement.

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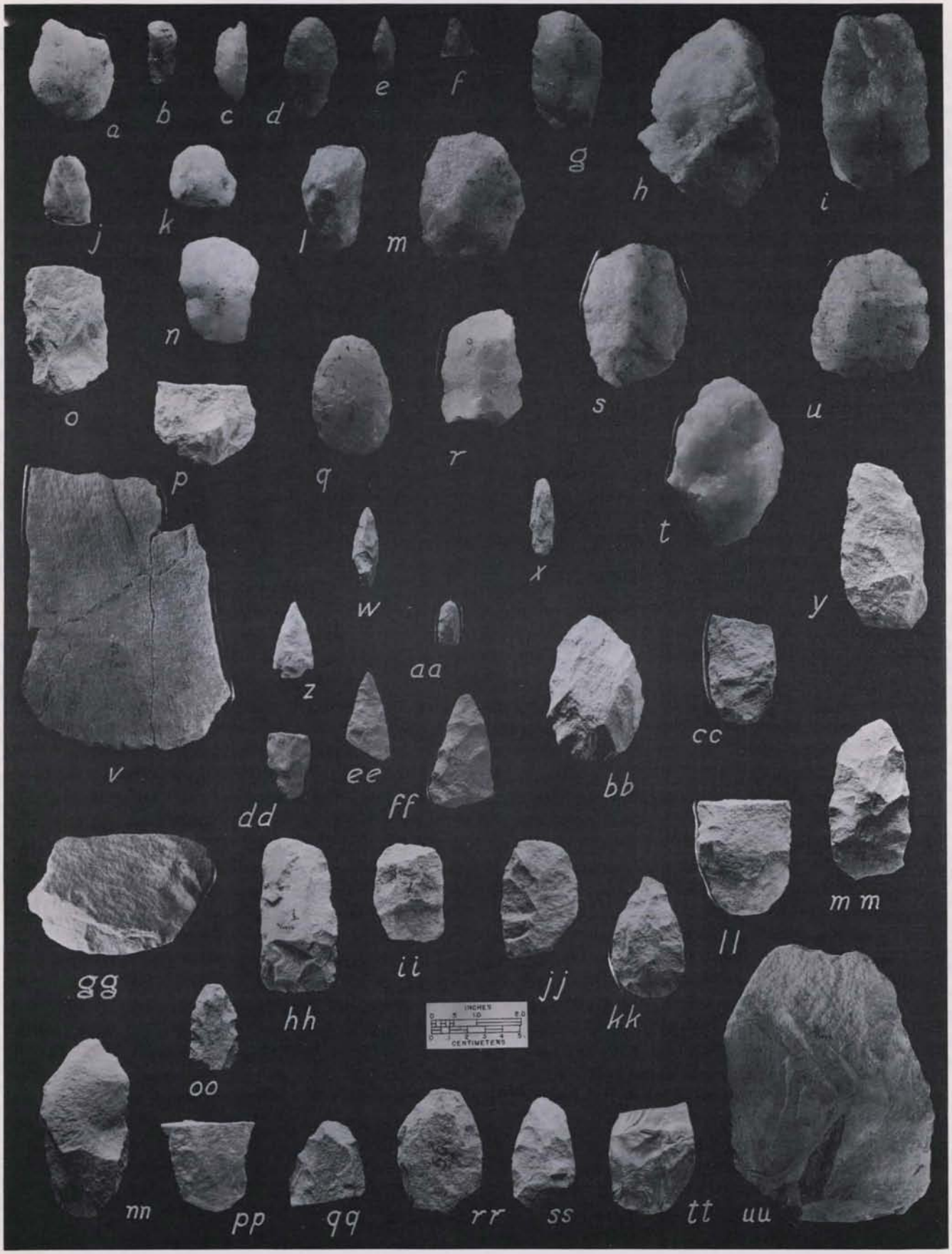
**FIG. 1. Artifacts from the E. D. Prey Site, East Killingly, Connecticut: a. fragment of scraper; b. scraper; c, fragment of knife; d, hafted scraper or reamer; e, trianguloid side-notched point; f, tip of point; g, i, m, n, r-u, quartz "turtlebacks;" h, quartz quarry block; j, l, fragment of worked quartz; k, hammerstone; o, fragment of worked quartzite; p, butt of quartzite knife; v, tabular quartzite, possibly used as chopper, or for digging; w, stemmed point of reddish slate; x, stemmed point of "Rhode Island greenstone;" y, knife, one fragment in loam, other in till; z, stemmed (?) quartzite point; aa, thinned-base ovoid point; bb, ovoid knife; cc, jj, kk, oo, qq, ss, fragments, possibly of knives; dd, fragment of projectile point (?); ee, ff, fragments of points; gg, "semilunar knife;" hh, ii, knives or scrapers; mm, possibly unfinished example of same form; nn, piece of quartzite to show fracture; ll, pp, possibly fragments of unfinished implements; rr, piece of worked quartzite; tt, fragment of cocoa-brown chert; uu, battered block of quartzite; a-y, bb, wholly or partly in loam; all others in till.**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CENTIMETERS

FIGURE 1.

One large flat specimen (*gg*) has been worked along the curved edge so that it resembles a semi-lunar knife. The rather sinuous edge has been smoothed by wear. The piece measures 4 x 2½ inches in greatest dimensions and is ½-inch thick just above the point where thinning of the edge commences.

Three and possibly a fourth specimen may be basal portions of implements (*cc, jj, ll, pp*). The fourth specimen shows little evidence of secondary work although it approximates the shape of the others. This may be fortuitous. The others have in common a rounded base and sides that approach the parallel. Numbers *ll* and *cc* have been worked from both faces, but (*jj*) has been worked from both faces only along one edge, the shape of the other being largely the result of primary breakage. These may have been knives. Two fragments (*p* and one not illustrated) found "at the junction" probably belong in this class, although the latter shows such scant signs of work that it is placed in this category only by courtesy. The oval knife (*bb*) found "at the junction" or just below it is somewhat similar, but is formed on a large flake by retouching from one side only.

Two somewhat almond-shaped or oval pieces (*kk*), (*rr*) are so crudely worked that it is impossible to tell whether they have been broken since they were used. That shown as *rr* is made from a tabular piece of stone retouched from the opposite face on the opposite edge. "Tip" and "base" are broken. It may have been a knife. That illustrated in (*kk*) shows no such chip scars on the opposite face; the edges are "broken" rather than chipped, but one broke along a convenient plane of cleavage.

The crude knife (*y*) found partly in the till and partly in the loam is in the tradition of these pieces. It shows very little evidence of chipping on either face as it was made from a more-or-less tabular piece of stone. It is probable that a number of rather large shallow chips were removed from both faces, and the tip preserves more scars of flakes on the reverse side than the butt fragment does. The righthand edge has been dressed by pressure from the under side; the lefthand edge has been dressed from the side shown in the illustration.

The nature of two rectanguloid pieces (*hh*), (*ii*) is somewhat puzzling. The edges of each are "broken" rather than chipped, and are not sharp. It is difficult to determine which is the edge that was intended for use. One longer edge (the left) and one shorter edge (the lower) of (*hh*) show traces of chipping from both faces, but they are so worn that it is difficult to tell whether this chipping resulted from use or from the maker's attention to shaping the edge for use. The other piece (*ii*) can be described in much the same terms. Its excurvate longer edge is the thicker of the two. Both pieces could have been used as knives or scrapers.

Other pieces include a block which shows little evidence of shaping, and two more-or-less broken pieces that are not edged. Two large objects were found. We have already alluded to the tabular piece of quartzite (*v*) found in three pieces in the loam and till. The other (uu) is a piece that measures 6 x 4¼ x 1½ inches. It has been battered into shape along part of its perimeter, but for one-half the distance the edges seem to be without trace of retouch. It has been most severely battered along its righthand edge, but chips have not been detached from both faces so that it does not seem likely that it could have been used as a hammer. While these two pieces are of nearly equal size, they probably were not used for the same purpose; (*v*) could possibly have been used for digging, as it shows some sign of wear in addition to battering, but it is not too easy to see just how (*uu*) could have been utilized.

One large flake of a very fine-grained cocoa-brown chert-like stone was found (*tt*). While one surface has been worked irregularly, the other is a perfectly smooth fracture surface with the bulb or percussion preserved at one end. A portion of the striking platform also remains. The edges of the flake are broken off at approximately right angles to the fracture surface. In character of material and in character of chipping this specimen is reminiscent of certain pieces from Bull Brook. It may either have been picked up by the quartzite workers or dropped at their camp by others; no other fragment of this stone occurred there.

Four areas at the site were designated firepits. One of these, A, about 24 inches in diameter, was unlined, while C and D, 14-15 inches in diameter, were lined with flat stones of uneven height. A extended into the till as a somewhat basin-shaped depression, while C and D extended 8-10 inches into the till. While there is a chance that C was dug from a level close to that of the top of the till, there is nothing in the way of artifacts to show with which horizon it was associated. It could have been dug from the level of the loam quite as easily as from the level of the till. Mr. Bennett's notes are somewhat ambiguous in this respect, speaking of two levels of lining "one about an inch down and

the other 2″ & 3″ [sic] down." Loam extended to the bottom of pit D, while A was filled with loam, ash, and charcoal. Pit B was first discovered 6 inches below the surface of the till. It was 12 inches in diameter, extended to a depth of 24 inches, and was filled with "fine charcoal and ash." No signs of burning were associated with pit B.

Thus we do not find any evidence in the hearths to confirm or deny that people who used quartzite for implements preceded those who utilized quartz. All evidence on this point lies in the vertical distribution of the finds with respect to a somewhat movable datum—"the junction"—which, as we saw, was in the process of being pushed farther downward by insects. Nevertheless, Mr. Bennett's notes contain enough measurements to support the contention that quartzite objects were *in the main* found at greater depths than were those of quartz. The location of objects which are in the collections of the R. S. Peabody Foundation is tabulated below with respect to position relative to "the junction." If a specimen was found in more than one piece, each fragment counts as an occurrence.

**OCCURRENCE OF SPECIMENS ACCORDING TO MATERIAL AND RELATIVE DEPTH**

| | | | |
|---|---|---|---|
| **Total Number of Occurrences** | **53** | | |
| | **of Quartz 19** | **Quartzite 31** | **Other 3** |
| **Occurring Above Junction** | **28** | | |
| | **of Quartz 19** | **Quartzite 7** | **Other 2** |
| **Occurring Below Junction** | **25** | | |
| | **of Quartz —** | **Quartzite 24** | **Other 1** |

The outstanding fact is that quartz implements, and apparently chips as well, were found only in the loam. While some pieces of quartzite were found in the loam—one as high as 7 inches above the junction, one at 3, and a third at 1 inch above—it is possible to account for their presence there by natural causes. It seems most unlikely that these same forces could have singled out the quartz objects and lifted all out of the till if any quantity had been deposited there.

The quartzite implements are remarkable because of their crudeness and rough finish. They look old, but this appearance of age may only be due to the fact that they are made from a very crumbly gritty material which breaks down easily and soon loses its sharp edges. Another striking fact is that many of them are worked only on one side, the other being formed by intersection of two fracture surfaces. Furthermore, all seem to be a product of percussion flaking. They look like the products of a very old technique of stoneworking, but this, of course is no guaranty that the style of stoneworking did not persist into a comparatively recent era.

During August, 1948, G. D. Pope, Jr.. accompanied by Everett Griggs, worked at the E. D. Prey site for three weeks in the hope of finding additional material which would help to place the site in its proper chronological position. It became apparent that almost all artifacts had been removed during earlier operations, for Pope found only a few. A photograph which Pope has sent me shows that these include two small side-notched points (like our Fig. 1 *e*), a fragmentary point with a broad stem and three trianguloid points with concave bases. It is not possible to base categorical statements on a photograph, but one of these three seems to be an isosceles broad-stemmed trianguloid point, perhaps resembling that shown by Moffett (1957) in his Plate I, 22 or 25, and called by him "eared." The other two trianguloids may be similar to those shown by Pope (1952) as his Plate I, 56 and 69. In addition, Pope found what appear to be 3 butts of implements such as is shown in our Figure 1, *p. bb, kk.*

Unfortunately, data as to the provenience of these objects is not accessible at the present time, so that we cannot say whether they came from loam or till. They would certainly not be out of place in a Late Archaic context, and could occur on into Woodland horizons.

Since the E. D. Prey site yielded little information, Pope and Griggs went to the Charles Tyler site, near Moosup, Connecticut, where quartzite and quartz implements, including forms found at E. D. Prey and some not found there, occurred in some quantity. Pope (1952:3, 23) states that the site had been under cultivation and that he found no evidence of stratification. Potsherds at the Tyler site occurred at depths of 11 and 17 inches as well as in the plow zone. They include sherds identified as of Shantock ware and from vessels of North Beach stage of the Windsor tradition (*Ibid.* 22, 23). A fragment of the stem of a pipe found in fireplace A has not been placed stratigraphically. While the site appears to have been pretty well mixed, it should not be dismissed as completely unstratified.

The E. D. Prey site appears never to have been cultivated, although it may have been cleared. While it is tempting to accept E. D. Prey as stratified, we still know too little about what happens to things that are lost on sandy soil on which people live and walk to be too dogmatic about it.

One other line of evidence can be adduced to help to place the E. D. Prey site in the cultural column. This lies in a comparison between some of the implements from E. D. Prey and a collection gathered from the Huntington site in 1935. The Huntington site, in an extensive area of low relief north of the terminal moraine that runs across the southern part of western Rhode Island, lies about 3 miles northwest of the church in Perryville, a settlement within the township of South Kingston. It was brought to our attention by Maurice Robbins and A. Barton Congdon, of Cranston, Rhode Island. The site was known to others, as we soon discovered, for before we could commence operations a large part of it was dug over and any information which it may have contained was irretrievably lost.

Trenches dug through undisturbed portions of the site disclosed the soil to be worked-over outwash material with a band of ventifacts at about twenty inches below the surface. Weathered yellowish sands lay above the wind-cut stones, and whiter, less-weathered sand lay below. Two inches of forest duff covered the greater part of the area, which at that time supported a young growth of pitch pines (*P. rigida*).

Firepits—basin-shaped areas paved with small granite boulders no larger than a baseball—were found about two inches below the top of the yellow sand. The stones which lined the pits were burned and reddened, apparently by fire, to a depth of a quarter-inch or more. No satisfactory evidence of contemporary charcoal could be discovered.

Near the level of the firepits were points, chiefly of shale (Fig. 2*a-o*) and quartz (Fig. 2*r-bb*). knives (Fig. 2*ee-gg*), pebble hammerstones, a few naturally-shaped stones that had been utilized, a fragment of a semilunar knive (not in the Foundation collection and not illustrated) with gouged-out holes, and a rough-surfaced pestle with smooth ends (Fig. 2*hh*). Caches of fire-reddened stones, blocks and pebbles of quartz, and blocks of shale were also found. Two fragmentary points are somewhat larger than the rest. One of these was a long corner-removed form made of shale (Fig. 2*dd*), and while the second (*cc*), of quartzite, may have been of a like form, absence of its stem makes it impossible to be sure. One well-made stemmed point (*q*) was found 16 inches below the surface; it, too, was of quartzite, a material used for a very small percentage of the points.

The site had been known for years before we visited it, but it seems most unlikely that all polished stone tools could have been removed from it. Be that as it may, neither Mr. Robbins nor Mr. Congdon knew of any axes, adzes, or gouges from the site in private collections, nor did we find any evidence of them. The semilunar knife and the pestle, however, serve to place the site on a late Archaic horizon, for these implements are characteristic of Late Coastal Archaic from the Middle Atlantic States to southern New England.

Several forms of quartz and shale points occur in the collection from Perryville, and it would be possible to divide them according to the shape of the blade and the work on the stem, but close examination suggests that most are approximations of the elongate stemmed form and that variations in size and shape may be due in large part to the characteristics of the material from which the implements were made. Points made of quartzite—a variety more compact and firm than the Moosup quartzite—were quite nicely formed (see Fig. 2*p, q*). Some of the shale points were simply slivers and chips (*a, b, c, j, k, o*) which had been retouched very slightly in order to fit them for use.

Because of similarities between points found at Perryville and the elongate stemmed points and small quartz point from the loam at E. D. Prey it is possible, and perhaps permissible to tie upper E. D. Prey and Perryville together. If so, this would place both on a relatively late Archaic horizon. One can only say of E. D. Prey I—if, indeed it can be recognized as separate—that it is older than E. D. Prey II, but how much older it would be difficult to say without a larger sample. As we have already said, the implements are products of a very old style of stone working, but there is no knowing how long this persisted—in some places it may have persisted to historic times for the manufacture of the coarser tools.

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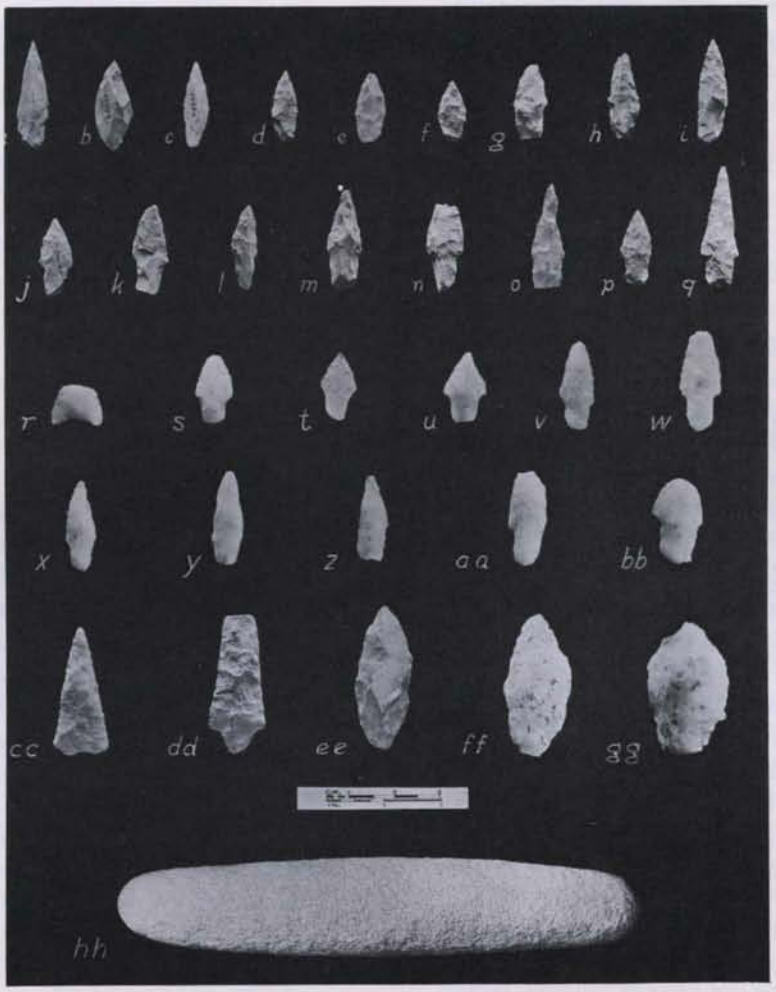


**FIG. 2 Artifacts from Huntington Site, Perryville, Rhode Island: a-o, shale points, of which a-c, j, k, show minimum retouching; p, trianguloid side-notched point of quartzite; q, elongate stemmed point of quartzite, found 16 inches below surface; r, fragment of trianguloid point with concave base; s-y, stemmed quartz points; z, aa, bb, asymmetrical implements; cc, dd, fragments of corner-removed points; ee-gg, knives; hh, pestle. Pestle is 3/4 the scale of other objects.**

# ROCKS AND THE ARCHAEOLOGIST

By

Arthur C. Lord, Jr.

It is soon apparent to anyone interested in archaeology that one must have an understanding of rocks and minerals. This is necessary in order that one will be able to converse and read with a degree of understanding. All that the archaeologist finds of human occupation is bone, shell, and stone with very little metal and organic materials. A very large proportion of all artifacts found are made of stone. An archaeologist should be able to identify those usually found on a site and have some idea as to how they are formed and in general where they can be found. This paper is an attempt to help members of the M.A.S. have a better understanding of and be able to identify the rocks which are related to archaeology.

## TYPES OF ROCKS

There are three main types of rock which make up the crust of the earth and each has several sub-classifications. The three main classes are igneous, metamorphic, and sedimentary. Those rocks which were once molten and have since cooled into a solid form are called igneous or "fire rocks". This is the molten volcanic material which has been forced up from deep within the earth and has either been extruded in the form of lavas on the surface or is intrusive and has cooled at varying distances below the surface. These molten rocks are sometime forced to or near the surface to form the cores of mountains and related volcanic structures. The second class is the sedimentary rocks. These rocks are formed from particles of older rocks. These older rocks, when exposed to weathering, break down and are carried by the forces of erosion to bodies of water where the particles settle to the bottom and are later formed by heat and pressure into sedimentary rocks. The third and last type is the metamorphic rock. The great forces of the earth which cause mountain building also alter the rocks in these areas. The pressure, and the heat caused by the pressure, cause both igneous and sedimentary rocks to alter their characteristics and to form new rock types. These are the metamorphic rocks. All three types of rocks were used in the manufacture of artifacts and all can be found in Massachusetts except where specifically mentioned.

## IGNEOUS ROCKS

This is a large field and contains many of the archaeologically important rocks. The igneous rocks are broken down for identification purposes by their color and texture. The texture of rocks is categorized by the size of the crystals which make up the rock. Rocks with visable crystals are called grained rocks, those with very small crystals are termed dense, and those rocks which have no crystals at all are called glassy or amorphous.

The size of the crystals is caused by the speed at which the molten material cools. The extruded lavas cool very quickly and either have very dense grain as the felsites and the basalts or none at all like obsidian. Those rocks which cool at great depths have the largest crystals as they cool the slowest of all. An exception is the case where molten rock material starts to cool at a great depth and some crystals are formed, then the molten materials are forced to or near the surface and the remainder cools at a much faster rate resulting in a few large crystals imbedded in a dense rock. This is called a porphyry and the crystals are called phenocrysts.

The color of igneous rocks depends on the minerals of which they are made. Each mineral has a distinct color and in the rocks that have crystals each crystal has its own color and produces a color pattern which is interpreted as dark or light. In rocks that are dense or glassy the color is a blend of all and gives a single shade. These are also classified as dark or light. In Fig. 1 the table of igneous rocks divides them into two categories and gives examples of each type. As you see from reading the chart the dark rocks are quite simple in their divisions. We have the dark gabbro which is similar to granite except that it contains few light colored minerals and a greater quantity of dark. The basalt or trap rock is dark but dense and similar to felsite except for color. Obsidian is black glassy rock. The lighter shades include the granites and diorites, the diorites having a greater number of dark crystals than does the granite. The felsites are a light colored dense rock and they and the felsite porphyrys are the materials used in the manufacture of some of the best artifacts found here in the East. Most of these types are important archaelogically and are found in most states. The grained rocks because of their crystalline structure do not produce the fine chipping as does the dense or glassy rocks, but many mortars; pestles, and anvils can be and are made from these rocks. The dense rocks are used to a great extent in the Northeast for artifacts as they will allow fine chipping and can produce an artifact that is of superior workmanship. The felsite can be found in a great variety of light colors, red,

light brown, green, and greys and are used in the manufacture of a great variety of artifacts. The basalt is used for the same purpose as the felsites and also often used in the manufacture of large tools like axes and gouges. Obsidian is the classic material for artifacts but is not found here in the Northeast but is widely used in the West.

All these rocks can be found in Massachusetts except for the obsidian and the gabbro porphyry which is very rare.

## SEDIMENTARY ROCKS

Sedimentary rocks are of three main types and are divided into groups by the size and method of deposition of the particles from which they are made. The old rocks are broken down by chemical and mechanical weathering. Chemical weathering is the process in which surface water and gases in the air combine to form acids and chemically decompose the rocks. From this process clays, sand, and small stones are formed. In mechanical weathering the rocks are made smaller by being smashed, ground together and worn by wind and waves. In valleys, lakes, or on the floors of the sea those particles of like size pile up and form horizontal layers of sedimentary materials. Sedimentary rocks gradually form as these deposits become thicker and merge to form cemented masses. Loose particles are welded together, joined by pressure and by the deposite of a cementing substance. Sometimes living organisms form sedimentary rock. Coral forming limestone is an example. Most of the earth is mantled by sedimentary rocks and they are the most common.

Sedimentary rocks are classified as follows: CLASTIC where the sedimentary rock is made from pieces of the weathered older rock. The pieces range in size from microscopic clay particles to cobbles six inches in diameter in conglomerates. Clastic sedimentary rock is the most common of all sedimentaries and are found universally. CHEMICAL sedimentaries are much less numerous but were of extreme importance to early man. These are the rocks which are derived when old rocks are weathered by chemical means. The rock breaks down into molecular form and the particles are carried by surface waters to the sea. The molecules of silicas, pure quartz, precipitate out of the water and gather at the ocean bottoms and form silicas which when hardened become the flint group and the iron oxides. The flints are rare except where limestone is abundant and we have little limestone in Massachusetts. ORGANIC sedimentaries were not important to early man as they are today. They include coal, from plants, oil from tiny marine life and limestone from coral. These rocks are not found in the Northeast.

Fig. 2 shows these three categories and gives examples of the sedimentary rocks in each and tells from what material each was made. These are not except for the flint group hard rocks and therefor are not of much use in making artifacts. The sandstones are sometimes used as crude tools but the clastic group is of little use as artifact material. The one which is of greatest importance to the archaeologist is the chemical sedimentaries which include the soluable silicas and the iron oxides. The flint group includes nodual flint, jasper, chert, and the banded chalcedoney. All being excellent material for the manufacture of artifacts. The only difference between the flints is color, the flint being black, the jasper red, the cherts greys and browns. The chalcedoney is banded and may have all the colors. In the same class are agates and petrified woods where the silicas have filled a void as in agate or replacing wood as in petrified wood. The second group important to the archaeologist is the iron oxides which are more commonly known to diggers as Red Paint. These rocks are seldom found in Massachusetts but were of such value to the Indian that they carried them great distances. The flint artifacts found in this region are almost always excellent specimens and beautifully worked. One of the finest pieces the author has ever seen is the fluted point found by Harold Curtis at Lake Assawompsett which is made out of red jasper. Some of the shales are quite common on any archaelogical site. A green shale called argillite is used for the manufacture of many small projectile points.

## METAMORPHIC ROCKS

Metamorphic rocks are the last of the three main divisions of rocks. In this rock type it is a case where sedimentary or igneous were changed by heat or pressure or even a combination of both. The heat may come from deep within the earth or from pressure. The pressure may be from the weight of subsequent layers or from squeezing pressures of mountain making. This change can be a hardening of the rock, realinement of crystalline structure and or a complete change so that the original rock can't even be recognized. Some examples are shale hardened until it becomes slate, granites which become

gneiss or shist, coal changed to graphite and limestone to marble.

The metamorphic are so varied that it is best to only consider the more important ones as far as the archaeologist is concerned. Probably the most important one is soapstone or steatite which is a talc formation. This material is used for both bowls and the pipes. It is quite common in Massachusetts and there are Indian quarries in Millbury, Mass., and in Rhode Island. It is also quite common in western Massachusetts in the form of ledges associated with the Connecticut River Valley. Quartzite is also important and is rock derived from sandstone but the sand grains are so cemented together that the grains will fracture across instead of between grains. This material is most often used for small tools and projectile points. The slate family is extensive and contains many types. This material is fine textured and easily ground. It is often used for ulus, gorgets, and other similar ground artifacts.

### QUARTZ

Quartz is such a common material and since it is to be found in all classes of rocks it will be treated separately. It is found in great quantities all over the Northeast and is the most common artifact material that is found on many archaeological sites. Quartz is broken down into two classes, the crystalline and the micro-crystalline. The micro-crystalline includes the flint family derived from soluable silica and the metamorphic quartzite. The crystalline quartz or massive quartz is found as crystals in cavities of other types of rocks and in veins of metamorphic rocks. The main difference in the varieties of quartz is color impurities causing the quartz to exhibit a variety of colors. Agate, amethyst, rose quartz, white quartz, smokey or clear, it's all a matter of color. Many artifacts are made from this material and are of degrees of workmanship, depending on the quality of each type of quartz.

### Summary

In summary let it be realized that this is at best a very brief outline of rocks and that many types and forms have been purposely omitted as there are just too many varieties to be considered in a short article.

It is often very difficult to anyone but an expert to identify all rocks, as there are all degrees of change and the characteristics almost seem to blend from one type to the next and all classifications are very subjective.

Anyone wishing to delve into rock identification further may consult a good field manual or text such as those in the bibliography. Fields "Geology" College Outline series may be purchased for as little as $1.35 and pocket books as low as $.35. Most Public Libraries also will contain books on this subject. It is hoped that after reading this article when you see a projectile point you will think not only is it corner removed or small stemmed but also is it a felsite or a basalt.

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| IGNEOUS ROCK TABLE | | | | |
|---|---|---|---|---|
| | | LIGHT COLORED ROCKS | | DARK COLORED |
| | | ALL LIGHT COLORED | SOME DARK MINERIALS | |
| GRAINED (CRYSTALS) | EVEN TEXTURED | GRANITE | DIORITE | GABBRO |
| | PORPHYRITIC | GRANITE PORPHYRY | DIORITE PORPHYRY | GABBRO PORPHYRY |
| DENSE OR FINE GRAINED | EVEN TEXTURED | FELSITES (MANY SHADES) | | BASALT |
| | PORPHYRITIC | FELSITE PORPHYRIES | | BASALT PORPHYRY |
| GLASSY OR AMORPHOUS | EVEN TEXTURED | PUMICE | | OBSIDIAN |
| | PORPHYRITIC | | | PORPHYRY |

fig. 1

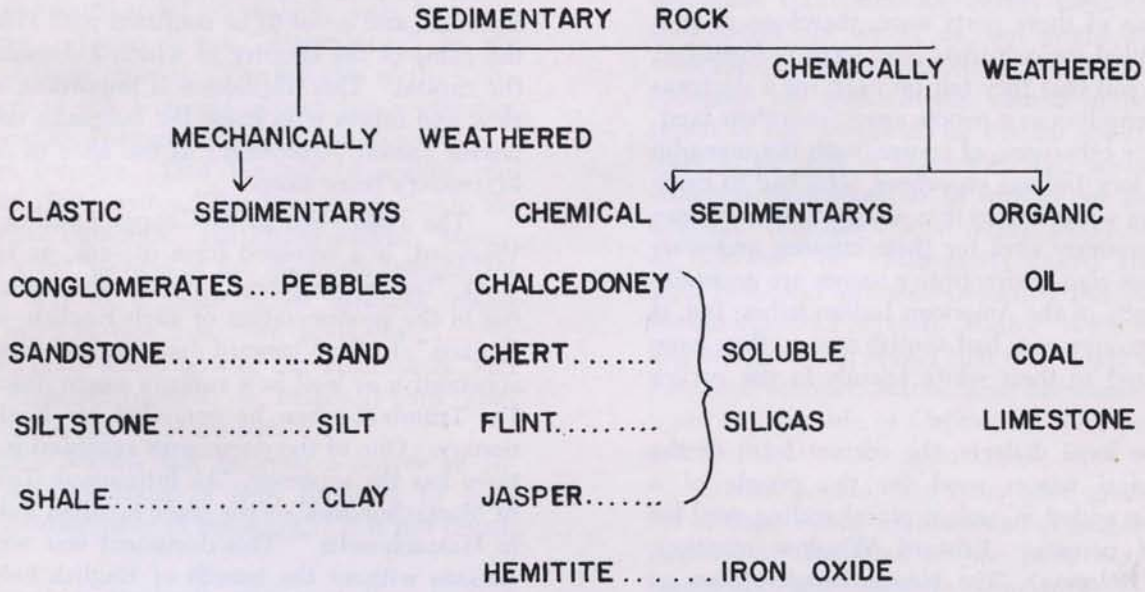


fig. 2

# MASSASOIT'S DOMAIN: IS "WAMPANOAG" THE CORRECT DESIGNATION?

by
Warner F. Gookin

The Wampanoag, according to the definition of Bulletin 30, Handbook of the American Indians, was one of the principal "tribes" of New England. This understanding of the term is well established among ethnologists and archaeologists, and probably irrevocably so. Nevertheless, strange as it may seem, there is no documentary evidence whatever that Wampanoag was an early accepted name for the Indians of the Plymouth jurisdiction, as commonly supposed. It was not until the time of King Philip that it was generally used; and then, as will be suggested, it had a wider connotation than that of a "tribal" name. From the evidence available, it is not a safe assumption that Massasoit would have recognized himself as the great chief of the Wampanoag.

The fact of the matter is that the Indians of southeastern New England had no tribal designations for themselves other than territorial names of the well-defined Sachimships which they occupied, and these were usually derived from the name of their Sachim's chief residential town. "Every Sachim," wrote Edward Winslow (*Good News,* 1624), "knoweth how far the bounds and limits of his own country extendeth; and that which is his own proper inheritance. Out of that, if any of his men desire land to set their corn, he giveth them as much as they can use and sets them their bounds." The Indians of these parts were, therefore, at that period, settled agriculturists; and were so identified with their soil that they felt no need for a designation of themselves as a people apart from their land. It was quite otherwise, of course, with the nomadic and migratory Indians elsewhere, who had to carry their names with them as they sought new and more or less temporary sites for their hunting and warfare. These clan or descriptive names are generally characteristic of the American Indian tribes; but, if our local groups ever had similar names, they were not divulged to their white friends in the earlier records.

In the local dialects, the correct form of the topographical names used for the people of a Sachimship ended in -uck, a plural ending used for groups of persons. Edward Winslow mentions (*Mourts' Relation*), "the Namascheucks (they so calling the men of Namaschet)." And again (*Good News*), "He feared (that) the Massachusetts or Massachuseucks (for so they called the people of that place) were joined with the Nanohigganeucks." Winslow's addition of an -s to these forms was for the benefit of English readers, to insure the understanding of -uck (or -og) as a plural form. Roger Williams is more explicit about this formation of territorial tribal names, (*Key,* 1643). "Secondly, particular names, peculiar to several nations, of them amongst themselves, as Nanhigganeuck, Massachuseuck, Cawasumseuck, Cowweseuck, Quintikoock, Qunnipieuck, Peguttoog, etc."

It is unfortunate that our forebears did not establish this proper form of tribal nomenclature, which would have given us "the Massachuseuck" as the name of that tribe. Instead, there has come down to us, in such forms as "the Massachusetts," a grammatical anomaly, in which the suffix -et (or -ut), indicating a geographical name, is retained in a name for persons—somewhat as though we were to speak of the Bostons, when we meant the Bostonians. Following the Indian method of grammatical construction, the tribal name of Massasoit's people would have been "the Pokonokeuck."

There can be no reasonable doubt, in view of the citations below, that the name of Massasoit's Sachimship was Pokonoket (subject to the usual variant spellings by the English). There occurs also the form Pokonokick, which by reason of the termination -ick means the residential place or town of Pokonok, and is not to be confused with Pokonoket, the name of the country of which Pokonokick was the capital. This distinction is important, as Winslow and others who knew the language use Pokonokick (never Pokonoket) as the alias of Sowams, Massasoit's home town.

The suffix -ick, as in Chappaquiddick on the Vineyard, is a softened form of -ack, as in Capawack, "the refuge place." We use this same softening in the pronunciation of such English words as "palace." In the Vineyard dialects, "ak" is used as a substantive as well as a suffix, a usage unknown to Dr. Trumbull when he compiled his Natick Dictionary. One of the documents recorded in Edgartown has the sentence, "Ak hittammuk Takemmeh ut Massachunesse,"—"the place is called Takemmeh in Massachusetts." This document was written by Indians without the benefit of English help about 1700, a decade after the Vineyard had been taken into the Province of Massachusetts. Takemmeh, usually misspelled Takemmy, is the Indian name of

the present West Tisbury. It is mentioned in this sentence as the "ak" or place where a chief had died in his "great house." There can be no doubt, therefore, that the suffix -ack, and its softened form -ick, designates the residence site, as contrasted with the Sachimship at large.

The following occurrences of Pokonoket and Pokonokick in early documents have been noted. In none of these documents, covering the first half century of the white man's contact with Massasoit and his people, is there any mention of the name Wampanoag. Thomas Dermer (1619), accompanied only by Squanto, reached Nummastaquyt, from whence he "dispatched a messenger a dayes journey further west to Poconaokit which bordereth on the sea; whence came to see me two Kings, attended with a guard of fiftie armed men." In a later letter about his trip (1620), he refers to the "Pocanawkits, which live to the west of Plimoth."

Edward Winslow, (in *Mourt's Relation*, 1621), writes: "Tisquantum told us we should hardly in one day reach Packonokick." . . . From thence we went to Packanokick; but Massasoyt was not at home." Again, (*Good News*, 1623), "I hired one to go with all expedition to Puckanokick." . . . "remained at Sawaams, or Puckanokick." . . . "our return from Sawaams, or Puckanokick."*

In the printed *Plymouth Records*, Vol. II, p. 23, (1641), Pockanacutt is mentioned as a country. In Vol. 4 (1662), there are several references to "Philip, Sachem of Pockanockett." In Vol. 11, p. 21, both Pokanacutt and Puckenakick, alias Sowaamset, occur. There is no "Wampanoag" in the indices of these records. The minutes of the Commissioners of the United Colonies for September, 1644, mention Poccanokick alias Sowamsett.

John Josselyn (*Two Voyages*, describing the voyage of 1663) writes, "The Pocanokets live to the westward of Plimouth." He further writes: "Massasoit, the great Sachem of the Plimouth Indians, his dwelling was at a place called Sowams, about (forty) miles distant from New-Plimouth . . . The Roytelet (petty king) now of the Pokanakets, that is the Plimouth-Indians, is Prince Philip alias Metacon, the son of Massasoit."

A little known but impressive source of information is "A Mapp of New England, by John Seller, Hydrographer to the King." It is not dated, but from the names shown was probably drawn about 1665. It may have been made by or for the Commissioners sent over by King Charles II to straighten out affairs in New England. East of the upper part of Narragansett Bay is the legend in large letters, "Pokanaket Country," and below this, also in large letters extending across the Taunton River is another legend reading "King Philips Country."

Daniel Gookin (*Indian Collections*, written in 1674) was Commissioner of the Praying Indians in the Bay Colony and an intimate of John Eliot. His comprehensive account of the New England Indians is one of the better observations of the period. The opening sentence of his chapter on them reads: "The principal nations of the Indians, that did, or do, inhabit within the confines of New-England are five: 1: Pequots; 2. Narragansitts; 3. Pawkunnawkuts; 4. Massachusetts; and 5. Pawtucketts." The unusual spelling, Pawkunnawkuts for Pokonokets, represents his own broad pronunciation of the name. There is no mention of the Wampanoag in his work.

For the purposes of this study it is important to remember that Massasoit was not only the great chief of his Sachimship, Pokonoket, but was also the head of an extensive confederacy. These confederates are included in the Treaty of Peace, signed with the Pilgrims on March 22, 1621. The clause stated that "He (Massasoit) should send to his neighbour confederates to certify them of this, that they might not wrong us, but might likewise be comprised in the conditions of peace." These confederates are undoubtedly named in part in the report of the conspiracy of certain sub-tribes, contrary to the will of Massasoit, who wished to join with the Massachusetts in wiping out the Weston Colony. Winslow (*Good News*, 1623) reports this as follows: "He (Massasoit) called Hobbamock unto him, and privately revealed the plot of the Massachuseucks against Master Weston's colony and so against us; saying that the people of Nauset, Paomet, Succonet, Mattachiest, Manomet, Agowaywam, and the isle of Capawack, were joined with them."

Daniel Gookin, fifty years later, gives a similar list of these minor Sachemships in league with the Pokonokets. Included are the petty sagamores on Nantucket and Martha's Vineyard, of Nawsett, Mannamoyk, Sawkattukett, Nobsquasitt, Mattakees and several others, together with some of the Nipmucks. But to my knowledge no name appears in

*Ed. Note—from *Hubbard's History of New England*, "Massasoit they brought down to the English at Plymouth, though his place was at forty miles distant, called Sowams, his country called Pokanoket."

the records of this half century from Winslow to Gookin to serve as a descriptive title of this aggregate of island, cape and mainland tribes over which the great Sachim of Pokonoket "held dominion." The situation is not unique, however, as Gookin likewise states that the Sachim of the Narragansetts "held dominion" over such diverse tribes as those of Block Island, some on Long Island, and some of the Nipmucks "that lived remote from the sea." These tribes were certainly not "Narragansetts", either by location or descent, yet one is at a loss to know what name otherwise might be used for the confederacy.

When, therefore, does the name "Wampanoag" come into fairly general use? The earliest mention of "the Wampanoag" that I have been able to find (with many works yet to be examined), is in Cotton Mathers' *Magnalia,* published in London in 1702.* Mather writes of the colonists' fear that the Narragansetts would make "junction with Philip and his Wampanoogs (for so were Philip's Nation called) . . . " From this, and from the meaning of the name, "The Easterners," it seems likely that "Wampanoag" could have been chosen by Philip as the name of the new pan-Indian nation which he hoped to form. The name seems too inclusive to have been the tribal name of Philip's inherited Sachimship. To tribes to the west, the Narragansetts, the Massachusetts, the Nipmucks were all "Easterners, and the name could not have served in that sense to distinguish Massasoit's people from these other eastern nations. On the other hand, it was a name under which all these diverse New England tribes could be united—and that was precisely King Philip's plan—that their lands might be recovered from the white invaders.

For an illuminating comment on the significance of the name Wampanoag I am indebted to the late Frank G. Speck. He wrote me: "I cannot refer you to where Wampanoag was first used in print, but it is a form of Wobanaki (-ag), "Easterners," as you point out, and indicates the localization of the people in the ancient east, along with the rest of the Wobanakkiak (Wabanaki, Wapanachki etc.) . . . I would rate it as a kind of generic term for them and am so doing in an article on the Del-Munsee who use it too." It will doubtless surprise many, as it did me, to learn that Wampanoag and Abnaki are dialect variants of one and the same name. Laurent (*Abnakis and English, Quebec,* 1884) defines Wobanaki as "the land or country of the east," from "woban," daybreak, and "-aki", land, ground or region. Wobanaki means also in Indian "from where the daylight comes." For comparison, note that the Natick word for "full daylight" is "wompan," (Trumbull, p. 242). The omission or addition of 'm' before 'p' or 'b' is a common phenomenon in dialect differences—hence wompan — woban, and Wampanoag — Wobanakiak, shortened to Abnaki.

From this it would appear that our seaboard Indians, like those of Maine and Delaware, were aware from ancient times that they were the easternmost of their racial stock: but there seems to be no reason why the name Wampanoag should be limited in meaning to the Pokonokets and their dependencies. On Block's Figurative Map of 1614 the name "Wapanoos" is placed at the northwest corner of a bay with islands recognizable as Narragansett Bay, not far east of the name "Pequats," as though the Dutch explorer understood that all of the tribes east of the Pequots were Wapanoo, or Easterners. On a map from *Blaeu's Atlas,* drawn probably about 1625 and largely the same as Block's, the name Wapanoos is replaced by "Nahicans." On this latter map, the Pokonoket region bears the name "Horicans," but what manner of reference this may be baffles me.

On both of these maps, Block's and Blaeu's, the seaboard Indians from New Plymouth north to the Kennebec River are designated as "Almouchicoisen," a name picked up by Champlain in 1605, and spelled Almouchiquois in 1613. Lescarbot, in a prior publication translated into English in 1609, gives the same name in a slightly different spelling, saying " . . . and from Kinibeki as farre as Malebarre, and further, they are called Armouchiquois." These people were described as speaking a dialect which the Frenchmen could not understand, and were notable for the cultivation of corn. This name is presumably the Abnaki designation for their neighbors to the south, and is apparently a French corruption of Alemousiski, "Land of the little dog."

If King Philip's "Wampanoag" were, as I believe Cotton Mather meant, the aggregate of Pokonokets, Massachusetts, Narragansetts, Nipmucks and others whom Philip hoped to rally under his leadership as the new King of the Easterners, then it is one of the ironies of history that the most easterly of them, the Christian Indians of the Cape and the Islands, are now also known by the name used for the tribes whom they refused to aid in 1675.

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*Ed. Note—Hubbard's considerably earlier "Indian Wars" mentions Wampanoogs. William Hubbard, the Ipswich minister, was one of the better early historians. Cotton Mather is chiefly indebted to him for what is correct in the *"Magnalia Christi Americana."*

# FURTHER COMMENTS ON MOORING HOLES

There has been so much misapprehension as to mooring holes and their value as evidence, that I am moved to write you about "Some Comments on the Mooring Hole Problem" by Mr. Ripley P. Bullen in the April 1958 issue of the Bulletin. I do this because I am the one who applied Mr. H. R. Holand's mooring-hole theory to the Atlantic Seaboard.

No single mooring hole can prove anything. Only an over-all picture can be considered to have validity as evidence. Mr. Bernard W. Powell and others wish to see if there is any pattern of holes much more weathered than others, or of mooring holes of various sizes, etc. For example, there are mooring holes along the Atlantic Seacoast which show much greater weathering than the mooring holes in Minnesota, which latter were presumably made in the 14th Century.

As for tools of Viking times, Dr. Johannes Brondsted directed me to visit the metallurgist in Copenhagen who had made analyses of the Viking tools and weapons in the Copenhagen Museum. The metallurgist in his laboratory showed me how he had proved that some of the iron tools and weapons of the Vikings were fitted with or had steel edges. With such tools, a man could make a mooring hole while the others were cooking supper. Would the noise have sounded an alarm? Certainly. But if no natives had seen the boat approaching the shore, presumably none were within sound of the chiseling of the hole. And what if they were? The mooring hole was for use in case of surprise attack.

Mr. Bullen questions whether it is possible to flip a mooring pin from its hole, and says: "I'd hate to bet my life on it." I suggest that if he tries it as others have done, he will be willing to bet his life on it.

If no rocks were available, seafaring men could not make mooring holes. That is the case in Denmark, where there is an absence of shore rocks. Mr. Bullen suggests that the Vikings would have landed on sandy beaches. Yes, but they would have let only the small boat actually touch the beach, except when they shored a ship for the winter, or to make repairs. They would not expose the prow of a ship that had only ¾ inch planking to the wear and tear of sand and gravel when most of the length of the ship was subject to motion from wind and wave.

Mooring (fastening a ship at both ends) kept the frail, flexible hull safe. It takes much longer to launch a boat from shore where ebbing tide may have left it heavily stuck, than to draw it away from shore, when it is floating clear, by pulling on its anchor hawser the moment the shore hawser is released.

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# EDITORIAL COMMENT

*Julius Lopez, recent Bulletin contributor, has been named Director of the newly formed New York City Archaeological Group. The Group will embark on an ambitious program of exploration and excavation in the New York coastal region, with primary attention to sites in the Greater New York area.*

*According to press reports the 25% increase in postage rates will have little or no effect in alleviating the annual post office deficit due to the accompanying upward revision of the wage scale of postal employees. It will, however, have a direct bearing on operational costs of Societies such as ours.*

*There are even rumors from informed sources that the going rate may be increased to five cents in 1959. All of which poses a neat problem for our Board of Trustees in maintaining a balanced budget with presently available income.*

*The January issue of the Bulletin will contain Part I of a comprehensive report on "Indian Burials of Southeastern Massachusetts" by Maurice Robbins. Part II will follow in due course.*

*Paleontologist Kenneth Oakley of the British National History Museum, instrumental in exposing the Piltdown man hoax, recently summarized the age of ancient man as shown by radio-chemical techniques.*

*He reasons that man reached the level of Pithecanthropus (Java man) and Sinanthropus (Peking man) between 500,000 and 300,000 years ago. He could reasonably be called homo sapiens by 100,000 years ago, but he saw no undisputed evidence that men looking like modern man existed before about 30,000 years ago.*

*One of our members recently had occasion to visit the New York Public Library to do a little research work in the rare book department and was much impressed with the precautions in vogue there to protect volumes valuable enough to be kept out of general circulation.*

*From the attendant in the catalog room he was sent to the office of the assistant librarian. After giving reasons for wanting to examine certain books and displaying credentials the librarian stamped approval on the application form and directed the applicant to the rare book room.*

*The door of this room lacked a handle but carried a notice to push a button, whereupon a slide reminiscent of speakeasy days opened, revealing an inquiring pair of eyes. Apparently satisfied, the door was opened, disclosing an inner barred door of steel.*

*After entering the latter the applicant was assigned to a table, but only after the steel door had been reclosed and rebolted. The wanted reference material was then produced and the vigilant guardian kept tabs until the books were returned to her desk.*

*Quite a contrast to the haphazard manner in which priceless records and documents, many dealing with early colonial days and Indian affairs, have until recently been exposed to loss in our own State House in Boston. Among these State House documents is a peace treaty over 300 years old between the Bay Colony and the Niantic and Narragansett tribes, the oldest Indian treaty in Massachusetts, and probably in the country.*

*National Geographic magazine for August has an article titled "How Old Is It" by Dr. Lyman J. Briggs which is a clearcut and well illustrated explanation of the techniques involved in radiocarbon dating. Instruments used in the laboratory analysis are pictured and many of the analyzed materials are portrayed.*

*The prehistoric culture periods of the Indians of southeastern U. S. are ably presented in a volume titled "Sun Circles and Human Hands." On enamel paper and containing 232 pages and 500 pictures the volume is a welcome addition to a well-rounded library. Copies are available at $7.50 from Miss Emma Fundaburk, Luverne, Alabama.*

*For several months the Metropolitan Museum of Art in New York City has been busily liquidating surplus specimens. Chipped artifacts, scarabs, jars from tombs, potsherds, bronzes and wooden carvings have all found their way into collectors' hands. Museums had first choice but hundreds of pieces have been made available to the general public.*

*The sale ceased on September 1st, but it is planned to resume some time in January.*